

92-018148/03 INST FRANCAIS DU PETROLE 09.07.90-FR-008801 (15.01.92) C07c-02/66 C07c-16/40 C11d-01/22	D25 E14 HNSP 03.07.90 EP-466558-A	D(11-A) E(10-J281) N(6-Å)
2- and 3-Phenyl alkane(s) prepn. - by reacting benzene with linear olefin using catalyst of de-aluminized mordenite, for biodegradable detergent! C92-007844 RIAT BE DE ES GB IT NL	Prepn. of a mixt. of 2-phenylalkanes and 3-phenylalkane comprises reacting, in a reaction zone, benzene with a charge contg. at least one 9-16C linear olefin using a catalyst based on dealuminized mordenite (I). The obtd. prod. is then fractionated to obtain separately: a first fraction contg. unreacted benzene; a second fraction contg. unreacted 9-16C olefin; a third fraction contg. a mixt. of the 2- and 3-phenylalkanes; and a fourth fraction contg. at least one poly-alkylbenzene. The fourth fraction is at least partly recycled to the reaction zone where it reacts with benzene in presence of (I) to be at least partly transalkylated, and a mixt. of 2- and 3-phenylalkanes is recovered. (I) has	overall Si/Al atomic ratio of 15-85(pref. 15-80), Na wt. content of <1000 (pref. <250) ppm a very low or zero content of extra-network Al species; an elementary mesh vol. <2.760 (pref. <2.745) nm ³ , asymmetrical vibration frequency of the tetrahedra TO ₄ (T = Al or Si) >1070 (pref. >1088) cm ⁻¹ in the IR spectrum; and micropore vol. > 0.150 (pref. > 0.180) cm ³ (Liquid)/g. The first and second fractions are pref. also at least partially recycled. Reaction is pref. at <60°C.

to the intensity of signals corresp. to the frame alumina species (measured by ²⁷Al, NMR and IR spectroscopy in the OH g.p.s. region) is <0.15 (pref. <0.05).
(I) has a secondary pore network of above 0.020 cm³/g.
The catalyst pref. also contains a matrix selected from clays, alumina, silica, magnesia, zirconia, TiO₂ and/or boron oxide.

EXAMPLE
100g of a large pore mordenite in Na form (TSZ 600 NAA from Tosoh Co.) of formula Na₂AlO₂(SiO₂)_{3.1} was heated at reflux at 100°C for 2 hrs. in an ammonium nitrate soln. (4M), the vol. of which was four times the wt. of mordenite. This cation exchange operation was repeated three times. The prod. (contg. 500 ppm Na) was treated with an eq. soln. of HNO₃ of normality 4.5N at reflux. The obtd. catalyst had the following characteristics. Na content:- 25 ppm; Si/Al (overall):- 40; elementary mesh vol.:- 2.715 nm³; IR frequency TO₄:- 1088 cm⁻¹; micropore vol.:- 0.272 cm³/g and mesopore vol.:- 0.178 cm³/g (Dubinin).
The catalyst was used for the alkylation of benzene with dodecene-1 under the following conditions:- temp. 50°C; pressure 43MPa, LHSV 3, benzene/dodecene-1 molar ratio: 5.5.

Selectivities to 2-phenyl-dodecene and 3-phenyl-dodecene w.r.t. converted dodecene-1 were 75.8% and 10.6% resp.
(14pp950DAHDwgNa0/1).
(P) ISR: US4731497 EP-380515 FR2084704

EP-466558-A

BEST AVAILABLE COPY